

Claim(s)

What is claimed is:

- add a⁷
1. A method of targeting advertisements for use in an on-line query tool, comprising:
obtaining categories of documents that may be retrieved with the query tool, the categories having terms;
establishing super-categories for the documents;
mapping each of the categories to a super-category;
establishing a super-category term list for each term appearing in a super-category or a category, each element of a list including the terms in the super-category and the terms in the categories that are mapped to that super-category;
obtaining the terms in a user query;
obtaining the terms in the categories that are retrieved in response to the user query;
forming a modified query consisting of the terms in the user query and the terms in the categories; and
ranking the super-category lists to determine the most relevant super-category to the user query.
 2. A method of claim 1, further comprising:
matching advertisements to the super-categories; and
displaying an advertisement matched to the highest-ranked super-category.

- A method of claim 1, wherein ranking the super-categories comprises:
for the super-category term list corresponding to each term in the modified query,
 $\text{rank}(\text{term}) = \frac{\log_{\epsilon}(df + 1)}{\sum_{t=1}^n \left(\frac{tf(t, c_i) * idf(t)}{\max_j tf(t, c_j)} \right)}$
calculating the sum for all of the terms in the modified query of the product of the term frequency of the term in that super-category term list and the inverse document frequency of the term in the entire group of super-category term lists.
- a method of claim 3 wherein the term frequency is calculated based on the logarithm of the number of terms appearing in the super-category.
- a method of claim 3 wherein the inverse document frequency is calculated based on the Robertson's term frequency.